REQ NO.2-9144-5

CONTRACT REPORT NO. OSQ82-00170

REFERENCE URANIUM TAILINGS

Bottle Number:

UTS-1	963
UTS-2	123
UTS-3	338
UTS-4	

Laboratory: Bondar-Clegg & Co. Ltd. (Vancouver)

MICROMEDIA
AUG 29 1983

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URANIUM TAILINGS UTS-1

Constituent	Sample Size (g)	Test portion 1	2	3	4	5
Fe (total) - %	0.2	5.10	5.10	5.00	5.05	5.10
Ti %	0.2	0.54	0.54	0.51	0.48	0.51
Al - %	0.2	6.45	6.45	6.40	6.51	6.40
Ca - %	0.2	5.14	5.18	5.22	5.14	5.14
Ba - ppm	Not Applicable	370	390	400	390	390
U ppm	0.20	31	29	28	30	29
Th ppm	Not Applicable	137	144	139	140	143
S (total) - %	0.20	0.94	0.96	0.95	0.96	0.97
SO_4^{2-} - %	0.20	<0.03	<0.03	0.03	0.03	<0.03

URANIUM TAILINGS UTS-2

Constituent	Sample Size (g)	Test portion 1	2	3	4	5
Fe (total) %	0.20	3.20	3.20	3.25	3.20	3.25
Ti %	0.20	0.21	0.18	0.24	0.21	0.21
Al %	0.20	2.65	2.70	2.73	2.75	2.70
Ca %	0.20	0.43	0.43	0.39	0.39	0.43
Ba ppm	Not Applicable	630	620	630	620	620
U ppm	0.20	40	40	43	41	43
Th ppm	Not Applicable	196	192	200	196	196
S (total) %	0.20	3.14	3.10	3.18	3.14	3.14
[illegible]	0.20	0.03	0.06	0.03	0.03	0.03

URANIUM TAILINGS UTS-3

Constituent	Sample Size (g)	Test portion 1	2	3	4	5
Fe (total) %	0.20	3.35	3.30	3.35	3.30	3.30
Ti %	0.20	0.23	0.24	0.24	0.21	0.21
Al %	0.20	6.00	6.03	6.00	6.09	6.00
Ca %	0.20	3.86	3.93	3.89	3.93	3.89
Ba ppm	Not Applicable	235	230	240	240	240
U ppm	0.20	485	515	485	485	490
Th ppm	Not Applicable	11	7	12	4	4
S (total) %	0.20	0.22	0.22	0.21	0.23	0.22
SO_4^{2-} %	0.20	<0.03	0.03	0.03	0.06	0.03

URANIUM TAILINGS UTS-4

Constituent	Sample Size (g)	Test portion 1	2	3	4	5
Fe (total) %	0.20	2.90	3.00	3.00	2.95	2.95
Ti %	0.20	0.24	0.24	0.24	0.24	0.21
Al %	0.20	6.30	6.57	6.51	6.35	6.51
Ca %	0.20	1.75	1.71	1.71	1.75	1.71
Ba ppm	Not Applicable	70	90	70	100	90
U ppm	1.20	965	960	930	950	980
Th ppm	Not Applicable	21	21	20	20	22
S (total) %	0.20	1.72	1.72	1.78	1.76	1.74
SO_4^{2-} %	0.20	0.03	0.03	0.03	<0.03	<0.03
Ni %	1.0	0.015	0.017	0.015	0.015	0.018
As ppm	0.1	38	35	37	38	36

March 25, 1983

CONTRACT: 15SQ.23440.2-1944

A brief description of the analytical techniques used to analyze the four samples.

1. IRON AND TITANIUM:

Weighed portions of the samples were fused with sodium peroxide (Na_2O_2). The fusions were cooled then dissolved in water. Finally the solutions were acidified and bulked to the mark in volumetric flasks.

Iron was determined by atomic absorption spectrophotometry comparing the samples to standards similarly prepared.

Titanium was determined by spectrophotometry after development of colour by addition of hydrogen peroxide. Data from the samples was compared to standards prepared in a similar manner.

2. ALUMINUM AND CALCIUM:

Weighed portions of the samples were dissolved by a multi-acid digestion including hydrofluoric acid.

The digested samples were bulked to the mark in volumetric flasks.

Aluminum and Calcium were determined by atomic spectrophotometry comparing the data from the samples to standards prepared similarly.

3. BARIUM:

Barium was determined on the sample by X-Ray fluorescence using an energy dispersive spectrophotometry.

4. THORIUM:

Thorium was determined on the sample by X-Ray fluorescence using a wavelength dispersive spectrophotometry.

5. URANIUM:

Weighed portions of the samples were digested in acid and bulked to mark.

Aliquots of the solutions were fused with sodium fluoride-lithium fluoride flux.

Uranium was determined in the fused discs by fluorometry using a Jarrel Ash fluorometer.

6. TOTAL SULPHUR:

Weighed portions of the samples were analyzed for sulphur using a Leco Induction furnace.

The quantity of resultant sulphur dioxide gas was determined by iodometry using standard iodate solution.

7. SULPHATE SULPHUR:

Weighed portion of the samples were treated with phosphoric acid in the presence of metallic tin. Sulphide minerals were decomposed and the hydrogen sulphide (H_2S) gas was expelled.

After drying, residual sulphur was determined using a Leco Induction furnace. This residual sulphur was considered as sulphate.

8. NICKEL:

Weighed portions of the samples were dissolved in multi-acids including hydrofluoric acid. After digestion the samples were bulked to mark in volumetric flasks.

Nickel was determined by atomic absorption spectrophotometry comparing data to standards prepared in a similar manner.

9. ARSENIC:

Weighed portions of the samples were dissolved with acid.

Appropriate reagents were added to the digested samples to first reduce arsenic to its trivalent state then to generate arsenic as arsenic hydride. This gas was passed through a silver dithiocarbamate-pyridine solution where the colour formed was compared visually to standards prepared similarly.

RS:mer